



Introduction to Nanotechnology

Milestones

- 3.5 Mrd. Years: **First cells with nano machines**
- 400 B.C. Demokrit: **Reasoning about atoms and matter**
- 1905 Albert Einstein: **Calculate molecular diameter**
- 1931 Max Knoll & Ernst Ruska: **Electron microscope**
- 1959 Richard Feynman: **There's Plenty of Room at the Bottom**
- 1968 Alfred Y. Cho & John Arthur (Bell Labs): **MBE (atomic layer growth)**
- 1974 Norio Taniguchi: **Nanotechnology for fabrication methods below 1 μ m.**
- 1981 Gerd Binnig & Heinrich Rohrer: **Nobel Prize-Scanning Tunneling Microscope**
- 1985 Robert F. Curl, Harold W. Kroto, Richard Smalley: **Buckminster – fullerenes (Buckyballs)**
- 1986 K. Eric Drexler: **Engines of Creation**
- 1989 M. Eigler: **Writing with a STM tool**
- 1991 Sumio Iijima (NEC): **Carbon nanotubes**
- 1993 Warren Robinett, R. Stanley Williams: **Combination of SEM and VR (virtual reality system)**
- 1998 Cees Dekker *et al.*: **Carbon nano tube transistor**
- 1999 James M. Tour & Mark A. Read: **Single Molecule switch**
- 2000 Eigler *et al.*: **Construction of Quantum corrals and Quantum mirrors**
- 2001 Florian Bamberg: **Soldering of nanotubes with e-beam**
- 2004 Intel launches the Pentium IV “Prescott” processor based on 90 nm technology